

## Franciszek Hugon Szafraniec: A Scholar of Eminence

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Professor Franciszek Hugon Szafraniec on his seventieth birthday

Franciszek Hugon Szafraniec, who was launching in the Jagiellonian University Functional Analysis and Operator Theory in particular, came to Kraków at the age of 17. He was born on the 22nd of March, 1940 in (Upper) Silesia,<sup>1</sup> half a year after World War II had unleashed. His home town Świętochłowice, mostly inhabited by coal miners as well as steel and zinc workers, has impacted his attitude for the rest of his life. Those

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<sup>1</sup> Look at <http://www.britannica.com/EBchecked/topic/544097/Silesia> for some, mostly historical information on this multiethnic region.

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common people are valued for their reliability, sincerity and a clear sense of humor. Though the environment he grew up in might seemingly be in contrast to his liberal arts profile education all this together blended in creating a mighty personality of the man we know now.

Despite different adversities it was clear for long time he would enter a university, the only unclear factor was what and where. His mother was dreaming of Wrocław, his father opting for Kraków; mathematics was his last minute choice and finally the Jagiellonian University, the second oldest in Central Europe, let him in. Soon it turned out to be his love affair becoming more and more mature and lasting for 55 years. His academic career went rather undisturbed: doctor degree (1968), “doktor habilitowany” degree (1971) and scientific title of professor (1980), all obtained in mathematical sciences.

Professor Szafraniec has been involved in research activity for over 50 years, first in differential equations. Kraków was considered as a stronghold of analysis in a very broad, classical sense; the other two mathematical centers in the prewar Poland were in Warsaw and Lwów; Stanisław Zaremba (1863–1942)—the father of the *reproducing kernel property*—was a professor at the Jagiellonian University. After the World War II Kraków became internationally recognized for the vivid school of differential equations. Its founder, Professor Tadeusz Ważewski (1896–1972), a successor of Stanisław Zaremba, was Szafraniec’s doctor thesis advisor and his unsurpassable master. Professor Ważewski was able to attract quite a large group of enthusiasts clustering around his famous seminar mostly devoted to the theory of differential equations. This topic is vast enough in order to make a living throughout the whole life. However some mathematicians do not choose the easy way and seek for new challenges when properly inspired. This happened to Szafraniec on a sunny June day in 1968 when he met Włodzimierz Mlak (1931–1994), also a member of the Ważewski seminar, on the Main Market Square in Kraków. After a long coffee session in a nearby café he got converted into the theory of operators. This way OPERATORS entered his mathematical life and, in other words, a seed of operator theory was sowed on the Kraków soil. The passion which both of them had for this branch of mathematics was shared by their students and passed on to subsequent generations of mathematicians. This way Kraków became a vital world center of modern operator theory. The co-workers and former students of Professor Szafraniec may be found in all major Kraków universities.

Szafraniec’s mathematical contributions are both topically wide and insightfully deep. They cover differential equations in the early stages followed by a sudden turn into functional analysis and operator theory, including many related topics in moment problems, orthogonal polynomials, quantum physics, operators in Krein spaces and linear relations. His publication output includes essentially more than 100 papers most of which appeared in reputable journals and gained the feedback of nearly 400 citations by more than 100 authors. Because of his breadth and manifold contributions, it is impossible to go into detail when describing Szafraniec’s achievements in mathematics within a short overview. Out of his many noticeable results, we mention a few: simplified forms (including the diagonal one) of the boundedness condition in the famous Sz.-Nagy general dilation theory together with related integral representations of exponentially bounded operator-valued functions on abelian  $*$ -semigroups (unfortunately often attributed exclusively to a paper by Berg and Maserick, which

appeared later), foundations of the theory of unbounded subnormal operators (together with Jan Stochel), new solutions to multidimensional real and complex moment problems (together with Jan Stochel), fresh look on interpolation theory, three term recurrence relations for orthogonal polynomials of several variables (together with Dariusz Cichoń and Jan Stochel), and advances in the theory of quantum harmonic oscillators and canonical commutation relations. Professor Szafraniec's interests and activities in the mathematical world, together with his capability of co-operating, bears fruit in many publications which encompasses numerous joint papers with dozens of mathematicians.

Professor Szafraniec has been an active participant in many conferences organized throughout the world from China to Mexico, from Chile to South Africa. His talks often go beyond a mere presentation of results, being in fact small performances interspersed with witty insertions. It is no wonder that he is often invited to deliver lectures to so many meetings. Professor Szafraniec not only attends conferences abroad but he also organizes mathematical meetings in Kraków and other cities (recently in Leiden); he insists that mathematicians visit Kraków, a city that he is immensely proud of and loves, to see its historical and mathematical beauty.

Volumes 6.3 and 7.2 contain contributions related to the conference *Functions and Operators* (Kraków 2010) organized for his 70th birthday. His 60th birthday was celebrated during the conference *90 Years of the Reproducing Kernel Property* (Kraków 2000).

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